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Respectfully Submitted,

Mark J. Murphy Registration No. 34,225 Date: May 27, 2011

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## (12) United States Patent Higaki et al.

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(54) SEMICONDUCTOR DEVICE

(45) Date of Patent: (56)

Dec. 28, 2010

(75)	Inventors:	Yoshinari Higaki, Hiroshima (JP);
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PCT Pub. Date: Mar. 23, 2006

Prior Publication Data (65)US 2008/0136989 A1 Jun. 12, 2008 It is an object of the present invention to connect a wiring, an electrode, or the like formed with two incompatible films (an ITO film and an aluminum film) without increasing the crosssectional area of the wiring and to achieve lower power consumption even when the screen size becomes larger. The present invention provides a two-layer structure including an upper layer and a lower layer having a larger width than the upper layer. A first conductive layer is formed with Ti or Mo, and a second conductive layer is formed with aluminum (pure aluminum) having low electric resistance over the first conductive layer. A part of the lower layer projected from the end section of the upper layer is bonded with ITO.

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28 Claims, 14 Drawing Sheets

(52) U.S. Cl. ...... 349/46; 349/42 (58) Field of Classification Search ...... None See application file for complete search history.

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